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# **FACSIMILE COVER SHEET**

Deliver to: Mai, Tan V., USPTO	Art Group:2193							
Facsimile No.: (571) 273-8300	Date: <u>December 17, 2007</u>							
From: Brent E. Vecchia, Reg. No. 48,0	11							
Our Docket No.: 42P14609 Number of pages _13_including this sheet.								
Application No.: 10/658,612 Filing Date: 9/8/2003								
Docket Due Date(s): 12/17/2007								
Enclosed are the following documents:								
Amendment: (pgs)	☐ Issue Fee Transmittal							
Appeal Brief (pgs)  Application:  (pgs) w/cover & abstract)  Assignment & Cover Sheet (pgs)  Certificate of Eacsimile.  Continued Prosecution Application (CPA)  Declaration & POA (pgs)  Drawings:sheets, figures  Extension of Time:  Fee Transmittal (in duplicate)  DS & PTO/SB/08 (pgs)  Other:	☐ Notice of Appeal (in duplicate)							
Application:	Petition for:							
(pgs) w/cover & abstract)	☐ Request for Continued Examination (RCE)							
Assignment & Cover Sheet (pgs)	☑ Reply Brief ( <u>9 pg</u> s)							
☑ Certificate of Eacsimile.	Request & Certification Under 35 USC 122(b)(2)(B)(i)							
☐ Continued Prosecution Application (CPA)	☐ Request to Rescind Previous Nonpublication Request							
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■ Fee Transmittal (in duplicate)	☐ Transmittal of Publication Fee Due							
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SUBMITTED B					Registration No.		Comp	lete (if applicable)	
Name (Plant/1900) Brent E. Vecchia (Altomoy/Agont) 48,011 Telephone (303) /40-198						(303) 740-1980			
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Based on PTO/38/17 (12-04) as metified by Blakely, Solokoff, Taylor & Zafman (w/r) 12/15/2004. SEND TO: Commissioner for Fatents. P.O. Box 1450. Alexandria, VA 22313-1450

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METHOD OF PAYMENT (check all that apply)									
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Deposit Account Deposit Account Number: 02-2666 Deposit Account Name: Blakely, Sokoloff, Taylor & Zafman LLP									
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Based on PTC/SB/17 (12-04/ga modified by Blakely, Scickoff, Teylor & Zafman (wkr.) 12/15/2004. SEND TO: Commissioner for Patents. P.O. Box 1450, Alexandrie, VA 22313-1450

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48,011

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# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application. No.

: 10/658,612

Confirmation No. : 2531

1st Named Inventor: Gopalan Ramanujam

Art Unit

: 2193

Filed

: 09/08/2003

Examiner

: Tan V. Mai

Docket No.

: 42P14609

Customer No.

: 7590

Mail Stop Appeal Brief-Patents Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

## REPLY BRIEF IN SUPPORT OF APPELLANT'S APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

Sir:

Applicants (hereafter "Appellants") hereby submit this Reply Brief in response to the Examiner's Answer mailed in the above-identified case on 10/17/2007. The fees required under §41.20 for filing this Reply Brief are dealt with in the accompanying Transmittal of Appeal Brief. Appellants respectfully request consideration of this Reply Brief by the Board of Patent Appeals and Interferences for allowance of the above-captioned patent application.

An oral hearing is not desired.

#### REMARKS

#### **GROUP I: CLAIMS 1-19**

Claim 1 pertains to an apparatus comprising:

"a destination storage location corresponding to a first architectural register;

a functional unit to process a packed format values by converting, responsive to a control signal, a first packed first format value in a first format selected from a first plurality of packed first format values in the first format to a first plurality of second format values, said first packed first format value having a plurality of sub elements each having a first number of bits, each of the first plurality of second format values being a number represented in a second format and having a second number of bits which is greater than the first number of bits, said functional unit to store all of said first plurality of second format values into said first architectural register."

(a) Firstly, Appellants respectfully submit that claim 1 produces a useful, concrete, and tangible result, and is therefore statutory. On page 3 of the Office Action mailed 4/12/2007, the Examiner has admitted that the result "would appear to be concrete and tangible in the context of the claim". Appellants respectfully agree. However, the Examiner has asserted that "the useful result appears lacking". See e.g., page 3 of the Office Action mailed 4/12/2007. Appellants respectfully disagree. Claim 1 does produce a useful result. As one example, the result produced by claim 1 is useful for pixel processing. As another example, the result produced by claim 1 is also useful to provide shorter and in some case more rapidly executed code for some sequences. As a still further example, the result produced by claim 1 is also useful for signal processing scenarios. These examples are explained in more detail in the Appeal Brief with specific reference to the specification. Furthermore, the result produced by claim 1 may serve as an operand to a subsequent instruction, which is yet another use of the result. Accordingly, for at least one or more of these reasons, Appellants respectfully submit that claim 1 produces a useful, concrete, and tangible result, and is therefore statutory.

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In the Response to Argument section of the Examiner's Answer, the Examiner has asserted that "the result is merely numbers" and that because the result is merely a number it "does not have a real world value". Appellants respectfully disagree. Claim 1 recites "a first plurality of second format values are obtained through conversion of a value in a functional unit responsive to a control signal. Accordingly, a specific functional unit is used to obtain the first plurality of second format values. Furthermore, claim 1 recites that the first plurality of second format values are stored into the first architectural register. Accordingly, the result is not merely a number but rather a first plurality of second format values obtained through conversion with a specific functional unit and stored in the first architectural register. Appellants respectfully submit that values obtained through a specific functional unit and stored in an architectural register are real world values. Furthermore, as explained above, such real world values may be used for pixel processing, shorter and/or more rapidly executed code, signal processing, and may be used as an operand to a subsequent instruction.

(b) Secondly, Appellants respectfully submit that claim 1 pertains to an apparatus having "specific structural limitations", and specific interactions between the structural elements, and is therefore statutory. For example, claim 1 recites an apparatus comprising "a destination storage location corresponding to a first architectural register" and a specific "functional unit". The specific functional unit is "to process a packed format values by converting, responsive to a control signal," and "to store all of said first plurality of second format values into said first architectural register". As understood by Appellants, a claimed invention including "specific structural limitations" or a specific apparatus is statutory (emphasis added). See e.g., In re Iwahashi, 888 F.2d 1370, 12 USPQ 2d 1908 (Fed. Cir. 1989). Furthermore, as stated in MPEP 2106.IV.B.2, "If a claim defines a useful machine or manufacture by identifying the physical structure of the machine or manufacture in terms of its hardware or hardware and software combination, it defines a statutory product (emphasis added)". See e.g., Lowry, 32 F.3d at 1583,

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32 USPQ2d at 1034-35; Warmerdam, 33 F.3d at 1361-62, 31 USPQ2d at 1760. Still further, as stated in MPEP 2106.IV.B.2, "A claim limited to a machine or manufacture, which has a practical application in the technological arts, is statutory (emphasis added). In most cases, a claim to a specific machine or manufacture will have (emphasis added) a practical application in the technological arts". See Alappat, 33, F.3d at 1544, 31 USPQ2d at 1557. Accordingly, Appellants respectfully submit that claim 1 pertains to an apparatus having "specific structural limitations", and is therefore statutory.

(c) Thirdly, Appellants respectfully submit that claim 1 is limited to a practical application, and is therefore statutory. Claim 1 is limited to the practical application of a function unit of the claimed apparatus to perform the claimed conversion, "responsive to a control signal" (e.g., an instruction). Accordingly, claim 1 does not attempt to protect or preempt all possible uses the claimed conversion. Rather, claim 1 makes it clear that the claimed conversion is performed responsive to the control signal. Accordingly, claim 1 certainly does not pertain to an invention that merely manipulates an abstract idea or solves a purely mathematical problem without any limitation to a practical application. Instead, claim 1 is clearly limited to the practical application of performing the claimed conversion "responsive to a control signal" (e.g., an instruction). This is useful for a microprocessor implementation. However, there are other ways of performing the conversion besides "responsive to a control signal" (e.g., an instruction). An invention that does not attempt to protect all uses of an algorithm is eligible for patent See e.g., In re Deutsch, 553 F.2d 689, 193 USPQ 645 (C.C.P.A.) 1977). protection. Accordingly, Appellants respectfully submit that claim 1 is limited to a practical application, and is therefore statutory.

For at least one or more of these reasons, Appellants respectfully submit that claim 1 is statutory.

Appellants respectfully submit that claim 15 is statutory for one or more similar reasons.

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#### **GROUP II: CLAIMS 20-25**

Claim 20 pertains to a method comprising:

"a module fetching a first instruction that specifies a location of a first format value in a first format among a plurality of first format values of a packed data, the first format value having a plurality of sub elements each sub element having a first number of bits;

a functional unit processing the first format value by converting the first format value to a first plurality of second format values in a second format, each of the first plurality of second format values having second format and corresponding to one of the plurality of sub elements, the second format having a multiple of the first number of bits;

storing the first plurality of second format values into a first register."

(a) Firstly, Appellants respectfully submit that claim 20 produces a useful, concrete, and tangible result, and is therefore statutory. The Examiner has admitted that the result "would appear to be concrete and tangible in the context of the claim". Appellants respectfully agree, and submit that the result is also useful. Examples of uses of the result produced by claim 20 include, but are not limited to, pixel processing, providing shorter and in some case more rapidly executed code for some sequences, and signal processing scenarios. Additionally, the result may be used as an operand to a subsequent instruction. The discussion above is pertinent to this point. Accordingly, Appellants respectfully submit that claim 20 produces a useful, concrete, and tangible result, and is therefore statutory.

In the Response to Argument section of the Examiner's Answer, the Examiner has asserted that "the result is merely numbers" and that because the result is merely a number it "does not have a real world value". Appellants respectfully disagree. Claim 20 recites "a first plurality of second format values in a second format". The first plurality of second format values in a second format conversion of a value in a functional unit responsive to a control signal. Accordingly, a specific functional unit is used to obtain the first plurality of second format values in the second format. Furthermore, claim 20 recites that the the first plurality of second format values are stored into the first register. Accordingly, the result

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is not merely a number but rather a first plurality of second format values obtained through conversion with a specific functional unit and stored into the first register. Appellants respectfully submit that such values obtained through a specific functional unit and stored in a register are real world values. Furthermore, as explained above, such real world values may be used for pixel processing, shorter and/or more rapidly executed code, signal processing, and may be used as an operand to a subsequent instruction.

(b) Secondly, Appellants respectfully submit that claim 20 is limited to a practical application, and is therefore statutory. Claim 20 is limited to the practical application of implementing the method using "a first instruction that specifies a location of a first format value in a first format among a plurality of first format values of a packed data". Accordingly, claim 20 does not attempt to protect or preempt all possible uses the claimed conversion. Rather, claim 20 makes it clear that the method includes fetching the specific first instruction. However, there are other ways of performing the conversion. An invention that does not attempt to protect all uses of an algorithm is eligible for patent protection. See e.g., In re Deutsch, 553 F.2d 689, 193 USPQ 645 (C.C.P.A.) 1977). Accordingly, Appellants respectfully submit that claim 20 is limited to a practical application, and is therefore statutory.

For at least one or more of these reasons, Appellants respectfully submit that claim 20 is statutory.

#### **GROUP III: CLAIMS 32-33**

Claim 32 pertains to:

"A tangible machine readable medium carrying an instruction, which if executed by a machine, causes the machine to perform the operations of:

converting an integer value, the integer value being among a plurality of integer values of a packed data and having a first integer format having a plurality of sub elements each having a first number of bits, to a plurality of floating point values, each of the plurality of floating point

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values having a first floating point format, the first floating point format having a multiple of the first number of bits;

storing the plurality of floating point values into a first register."

(a) Firstly, Appellants respectfully submit that claim 32 produces a useful, concrete, and tangible result, and is therefore statutory. The Examiner has admitted that the result "would appear to be concrete and tangible in the context of the claim". Appellants respectfully agree, and submit that the result is also useful. Examples of uses of the result produced by claim 20 include, but are not limited to, pixel processing, providing shorter and in some case more rapidly executed code for some sequences, and signal processing scenarios. Additionally, the result may be used as an operand to a subsequent instruction. The discussion above is pertinent to this point. Accordingly, Appellants respectfully submit that claim 32 produces a useful, concrete, and tangible result, and is therefore statutory.

In the Response to Argument section of the Examiner's Answer, the Examiner has asserted that "the result is merely numbers" and that because the result is merely a number it "does not have a real world value". Appellants respectfully disagree. Claim 32 recites "a plurality of floating point values, each of the plurality of floating point values having a first floating point format". The plurality of floating point values are obtained through conversion of an integer value by the machine executing the instruction. Furthermore, claim 32 recites that the plurality of floating point values are stored into the first register. Accordingly, the result is not merely a number but rather the plurality of floating point values obtained through conversion performed by the machine executing the instruction and stored into the first register. Appellants respectfully submit that such values in the first register are real world values. Furthermore, as explained above, such real world values may be used for pixel processing, shorter and/or more rapidly executed code, signal processing, and may be used as an operand to a subsequent instruction.

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- (b) Secondly, Appellants respectfully submit that claim 32 pertains to a "tangible machine-readable medium carrying an instruction", and is therefore statutory. As understood by Appellants, computer programs embodied in a tangible medium are patentable subject matter under 35 U.S.C. Section 101. As discussed in MPEP 2106.01, "When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases (emphasis added) since use of technology permits the function of the descriptive material to be realized". As discussed in MPEP 2106.01 I., "a claimed computer-readible medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory" (emphasis added). See e.g., Lowry, 32 F.3d at 1583-84, 32 USPQ2d at 1035. See also e.g., In re Beauregard, 35 USPQ 2d 1383, 1384 (Fed. Cir. 1995).
- (c) Thirdly, Appellants respectfully submit that claim 32 is limited to a practical application, and is therefore statutory. Claim 32 is limited to the practical application of performing the claimed operations as a result of the machine executing the instruction. Accordingly, claim 32 does not attempt to protect or preempt all possible uses of the claimed operations. Rather, claim 32 makes it clear that the claimed operations are performed as a result of the machine executing the instruction. An invention that does not attempt to protect all uses of an algorithm is eligible for patent protection. See e.g., In re Deutsch, 553 F.2d 689, 193 USPQ 645 (C.C.P.A.) 1977). Accordingly, Appellants respectfully submit that claim 32 is limited to a practical application, and is therefore statutory.

For at least one or more of these reasons, Appellants respectfully submit that claim 32 is statutory.

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### **CONCLUSION**

Based on the foregoing, Appellants request that the Board overturn the rejection of all pending claims and hold that all of the claims of the present application are allowable.

Appellants respectfully petition for an extension of time should one be necessary. Please charge our Deposit Account No. 02-2666 to cover the necessary extension fee or any other needed fee under 37 C.F.R. § 1.17.

Please charge any shortages and credit any overpayment to our Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: December 17, 2007

Tel.: (303) 740-1980 (Mountain Time)

1279 Oakmead Parkway Sunnyvale, California 94085-4040